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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 16

Application Number: 09/411,515
Filing Date: October 04, 1999
Appellant(s): CHANG ET AL.1

Kevin P. Radigan
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 02/27/04.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences, which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of the amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellants statement in the brief that each rounds of rejection provides a group of claims, the following groups of claims are included herein:

I. Claims 1-2, 7-19, 24-37 & 42-52

II. Claims 3-6, 20-23 & 38-41

The claims of one Group of claims do not stand or fall with the other Group of claims. Rather, each Group of claims is decided independently of the other Group of claims.

Additionally, appellants respectfully submit that within the Groups, the claims do not stand or fall together.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

6,1086,99	**Moiin**	**07-2000**
6,400,681	**Bertin et al**	**06-2002**
6,532,494	**Frank et al**	**03-2003**

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-52 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2,7-19,24-37-42-52are rejected under 35 U.S.C. 103(a) as being unpatentable over Moiin (U.S. 6,108,699) and Bertin et al (6,400,681).

As per Claims 1,18,35 & 36 Moiin disclosed a method of reconfiguring a network having a plurality of nodes to reflect a change in topology of said network, said method comprising: upon receiving

a reconfiguration request at one node of said plurality of nodes (col. 2, lines 39-44), entering a quiescent state at said one node, wherein said one node remains in said quiescent state for a predetermined period of time sufficient to allow at least one other node of said plurality of nodes to also enter a quiescent state (col. 2, lines 23-34);

However Moiin did not disclose in details reconfiguring said one node to reflect said change in topology of said network without checking with said at least one other node.

In the same field of endeavor, Bertin disclosed the network topology information is updated when new links are activated, new nodes added to the network, when link or nodes are dropped or when link loads change significantly. Such information is exchanged by means of control messages with all other Route Controllers to provide the up-to-date topological information needed for path selection. The fact that the network topology is kept current in every node through continuous updates allows dynamic network reconfigurations without disrupting end users logical connections (col. 8, lines 34-44). One ordinary skill in the art at the time of the invention has the knowledge to consider the reconfiguration or the addition of the node or link will result in update of topology that can interrupted to change in topology of the node when it reconfigures upon termination of quiescent state.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the network topology information is updated when new links are activated, new nodes added to the network, when link or nodes are dropped or when link loads

change significantly. Such information is exchanged by means of control messages with all other Route Controllers to provide the up-to-date topological information needed for path selection. The fact that the network topology is kept current in every node through continuous updates allows dynamic network reconfigurations without disrupting end users logical connections as taught by Bertin in the method of Moiin to increase the efficiency of the network by reducing the dependency of the nodes on each other.

4. As per claims 2,19,37 Moiin-Bertin disclosed wherein said predetermined period of time comprises an amount of time sufficient to transmit a reconfiguration request from said one node to said at least one other node, wherein receipt of said reconfiguration request causes said at least one other node to enter a quiescent state (Moiin, col. 6, lines 1-17).

5. As per claims 7, 24, 42 Moiin-Bertin disclosed wherein said reconfiguring said one node occurs without any communication to said node from said at least one other node of said plurality of nodes (Moiin, col. 2, lines 40-46).

6. As per claims 8, 25, 43, Moiin-Bertin taught wherein said reconfiguring said one node comprises refraining from observing said change in topology at said one node during a grace period, wherein said grace period comprises a predetermined period of time sufficient to allow said at least one other node of said plurality of nodes to exit a quiescent state (Moiin, col. 6, lines 1-15), and upon termination of said grace period, observing said change in topology at said one node (Frank, col. 8, lines 34-44).

7. As per claims 9, 26, 44, Moiin-Bertin disclosed wherein said reconfiguration request results from addition or removal of a node or at least one other network to said network (Bertin, col. 8, lines 33-44).

8. As per claims 10, 27, 45 Moiin-Bertin where said reconfiguration request results from a change in address of a node of said network (Bertin, col. 9, lines 34-43).

9. As per claims 11, 28, 46, Moiin-Bertin disclosed wherein said network is reconfigured without interrupting currently executing protocols (Moiin, col. 6, lines 50-56).

10. As per claims 12, 29, 47, Moiin-Bertin taught wherein said network is reconfigured without a global synchronization protocol (Moiin, col. 6, lines 1-15).

11. As per claims 13, 30, 48, Moiin-Bertin taught further comprising transmitting, upon entering said quiescent state, a reconfiguration request causes said at least one other node to enter a quiescent state (Moiin, col. 2, lines 23-34).

12. As per claims 14,31,49, Moiin-Bertin taught wherein said reconfiguration request comprises one of a message having a reconfiguration sequence identifier and a message having a configuration sequence identifier different from a configuration identifier of said one node (Moiin, col. 5, lines 55-64).

13. As per claims 15,32,50, Moiin-Bertin taught wherein said network comprises a plurality of interconnected computing networks together implementing a distributed node and adapter status monitoring system (Bertin, col. 11, lines 24-30).

14. As per claims 16,33,51 Moiin-Bertin taught further comprising preventing by said node when in said quiescent state, execution of new protocols by ignoring proclaim, join, node, connectivity and group connectivity messages and by no longer monitoring heartbeat messages (Moiin, col. 8, lines 44-58).

15. As per claims 17, 34, 52, Moiin-Bertin taught further comprising transmitting, by said node when in said quiescent state, proclaim heartbeat, node connectivity, and group connectivity message with a reconfiguration sequence identifier to propagate reconfiguration requests to said at least one other node (Moiin, col. 9, lines 50-65).

16. Claims 3-6,20-23,38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moiin (U.S. 6,108,699), Bertin et al (6,400,681) and Frank et al (U.S. 6,532,494).

17. As per claims 3,20,38, Moiin-Bertin substantially disclosed the invention in claims 1,18,35,16 but did not disclose in detail wherein said predetermined period of time comprises an amount of time sufficient for protocol running on said network to complete execution.

In the same field of endeavor Frank disclosed if a node failed to receive a heartbeat message from one of the other nodes within a predetermined time interval, the cluster would enter reconfiguration mode (col. 5, lines 18-20).

It would have obvious to one having ordinary skill in the art at the time the invention was made to have incorporated if a node failed to receive a heartbeat message from one of the other nodes within a predetermined time interval, the cluster would enter reconfiguration mode as taught by Frank in the method of Moiin-Bertin to avoid the loss of system integrity by the failure or addition of the nodes or links.

18. As per claims 4, 21, 39 Moiin-Bertin-Frank taught wherein said protocols comprise one of a heartbeat, join, death, or node reachability protocol (Frank, col. 5, lines 58-61).

19. As per claims 5,22,40, Moiin-Bertin-Frank disclosed wherein said predetermined period of time comprises an amount of time sufficient for a protocol currently running on said network to perform a predetermined number of retries plus a predetermined amount of time between each retry, wherein after attempting said predetermined number of retries, said protocol completes execution (Frank, col. 5, lines 44-53).

20. As per claims 6, 23, 41, Moiin-Bertin-Frank disclosed wherein said protocol comprises one of a heartbeat, join, death, or node reachability protocol (Frank, col. 5, lines 44-53).

(11) Response to Arguments

In the remarks, applicant argued in substance that

(A) Applicant argued that prior art did not disclose, " This quiescent state is entered by a node, upon receiving a reconfiguration request at the node. The node stays in quiescent state for period of time sufficient to allow at least one of the node to also enter a quiescent state. Upon termination of the quiescent state of the node, the node is reconfigured to reflect a change in topology of the network without checking with at least one other node".

As to applicant's argument Moiin disclosed failure to receive messages from a particular node in a predetermined period is detected as a failure of the node. In response to the detected failure, the node detecting the failure sends a reconfigure message. Each node receiving reconfigure message broadcasts in response thereto a reconfigure message to all nodes and determines from which nodes a reconfigure message is received (col. 2, lines 40-47).

(B) Applicant argued that prior art did not disclose the node remaining in the quiescent state for a predetermined period of time sufficient to allow at least one other node of the plurality of the nodes to also enter a quiescent state.

As to applicants argument Moiin disclosed if one node detects failure of another node and sends a reconfiguration message to form a new cluster which excludes the failed node. In such

circumstances, the former failure-detecting node sends a reconfiguration message in lieu of receiving a reconfiguration message in step 602 but performs steps in the manner otherwise Described herein (col. 10, lines 48-54). One ordinary skill in the art at the time of invention can interpret the failure of the node as being in quiescent state. Whenever the node failed it forms a new cluster excluding that node for certain time and receive a reconfiguration message. Appellant's invention recite "entering a quiescent state at the one node", one ordinary skill in the art at the time of the invention can easily interpret the "entering a quiescent state at the one node" as the node going in an inactive or failed state either it receives a request for reconfiguration or because of the topology changed it goes into inactive or failed state in both cases the node goes inactive for a certain time.

(C) Applicant argued that prior art did not close reconfiguring said one node to reflect said change in topology of said network without checking with said at least one other node.

As to applicants arguments Bertin did disclose the network topology information is updated when new links are activated, new nodes added to the network, when link or nodes are dropped or when link loads change significantly. Such information is exchanged by means of control messages with all other Route Controllers to provide the up-to-date topological information needed for path selection. The fact that the network topology is kept current in every node through continuous updates allows dynamic network reconfigurations without disrupting end users logical connections (col. 8, lines 34-44). One ordinary skill in the art at the time of the invention can interrupt the "The fact that the network topology is kept current in every node

through continuous updates allows dynamic network reconfigurations without disrupting end users logical connections" to appellants "reconfiguring said one node to reflect said change in topology of said network without checking with said at least one other node". According to Bertin any time there is topological changes it is kept current by allowing dynamic network reconfiguration either by dropping the node and getting reconfigured and then added as new node back in the network and it will result in no disruption at the end user logical connections.

(D) Applicant argued that prior art did not disclose using two predefined periods of time in a manner recited by appellant's protocol.

After careful consideration of applicant's above argument the examiners consider that applicant is considering the claim too narrow. According to Moiin by waiting to receive reconfiguration messages from all nodes, CMM 220A (FIG. 3) determines which, if any, of nodes 1-5 are operative and in communication with node 0. When CMM 220A has received reconfiguration message from all nodes 1-5 or when the predetermined of time of time has expired, whichever occurs first, processing transfers to step 408 (FIG. 4) (col. 6, lines 7-13). One ordinary skill in the art at the time of the invention can interpret the applicant's grace period as predetermined amount of time.

(E) Applicant argued that prior art did not disclose use of quiescent state when reconfiguring.

As to applicant's argument Frank disclosed if a node failed to receive a heartbeat message from one of the other nodes within a predetermined time interval, the cluster would enter reconfiguration mode (col. 5, lines 18-20). One ordinary skill in the art at the time of invention can interpret "the node not being received a heart message from one of the other node within predetermined time interval" as one of the node in the network as being in quiescent state. In technical terms heartbeat message as being termed keep alive message receive from other nodes.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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SUPERVISORY PATENT EXAMINER

A.M.

May 14, 2004

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